HOW A SECURE DIGITAL SOCIETY CAN HELP MITIGATE THE COVID-19 CRISIS

During the COVID-19 crisis, we have seen how the e-Governance ecosystem existing in Estonia has ensured us the continuity and sustainability of the public sector services for citizens and enterprises. Through that, it has been proven how e-Governance can have a demonstrable and tangible impact on improving citizen participation and quality of life as a result of effective multi-stakeholder partnerships. Fully integrated public services are the way to build up the most secure digital society and overcome the crisis that we are facing today.

E-GOVERNANCE ECOSYSTEM FOR BUILDING UP A SECURE DIGITAL SOCIETY

It is important to keep in mind that in order to build up an e-Governance ecosystem, appropriate policy frameworks and legislative bases need to be developed by the governments. Here is a list of digital solutions that a modern society should possess and that help to ensure sustainable governance processes during any crisis:

PRIMARY REGISTRIES AND DIGITIZED FUNCTIONS OF THE STATE:

- **Civil registry** — database of all citizens and residents with rights and limitations to provide government services
- **Business registry** — fast incorporation helps to develop the business environment and increase FDI due to easier access to the market and helps to continue secure processes between enterprises and the government
- **Property registry** — general data like size, owners, restrictions and mortgages of immovable properties can all be managed online
- **e-Customs** — to enable smooth processing of goods coming into and leaving a country
- **e-Taxation** — to enhance government revenue as a result of automatic tax collection
- **Public finance management** — administration and supervision of the government and public sector spending
- **Law enforcement and justice** — develop digital access and management of courts to deliver efficient and paperless Rule of Law and accelerate contract enforcement to attract new businesses
- **Unemployment insurance registry** — almost fully automated applying for the unemployment insurance benefit and unemployment allowance; respective decisions confirmed with a digital stamp that has equal legal power to a physical signature
- **Fisheries management system** — electronic data on fishing opportunities, licenses etc. and reporting to ensure contact-free and sustainable fishing and simplified fishing surveillance

ENABLERS OF SECURE E-GOVERNANCE:

- **Data exchange infrastructure** — a data exchange system where a country's e-service databases, both in public and private sector, link up and operate in harmony; it allows 24/7 secure Internet-based data exchange between information systems
- **e-ID** — functions as definite proof of ID in an electronic environment; it provides secure digital access to electronic services on a governmental, business and/or personal level; mobile versions are the quickest to launch during a crisis
- **Data integrity** — blockchain technology in government databases to make sure networks, systems and data are free of compromise, all while retaining 100% data privacy
- **Data privacy** — privacy enhancing technologies to allow for the sharing and secondary use of special categories of personal data (e.g. healthcare data)

GOVERNMENT WORK-FLOW MANAGEMENT

- **e-Cabinet** — efficient and secure management of paperless government meetings, enabling ministers to conduct remote work, freeing more time for discussing most important issues
- **e-Parliament** — electronic environment for legislative drafting, emphasis on transparency and security, and automatization, smooth publishing of legislation in State Gazette

E-HEALTH

- **Hospital information system** — can be used both in hospitals and in individual doctors' offices; supports telemedicine, which provides virus safe-opportunities
- **e-Prescription** — centralized and paperless system to be used by all doctors, patients, and pharmacies in order to get medicaments during any crisis
- **VR solutions for contactless healthcare** — cost-effective healthcare solutions with more efficient and preventative measures
- **Drug shortage alert system** — advance alerts on supply levels, impending shortages of critical goods without requiring wholesalers and distributors to share their specific stock information; can be used also for essential goods (e.g. ventilators, food, fuel etc)
- **Auditable processing of sensitive data** — enables third party access to sensitive data; can be used to make predictions and decisions by public health researchers and economists while ensuring a full chain of custody for these data and full compliance with data protection regulations
- **Rapid issuance of documents** — digital documents tied to a QR code that can be presented on paper or a digital screen and verified universally; can be issued at short notice in crisis situations (e.g. permissions to medical workers) without requiring complex interoperability and data sharing

E-EDUCATION

- **School management system** — fast and efficient system providing better education and communication between students, their families, schools and supervisory bodies and giving possibilities for studying from a distance as it is needed during a crisis, such as sending and sharing lesson descriptions, homework, files, messages etc.
- **Digital content management** — managing and delivering of learning materials to students, testing, assessment/evaluation, analytics — all from distance and contact-free
- **Students registry** — information about educational competitions, submission of applications, registering for examinations, information about rankings all in one place
- **Higher education and researchers information system** — contact-free submission of applications for grants and visibility of research results + evaluation and processing of applications and giving feedback

SMART MOBILITY AND CITY PLANNING

- **Location intelligence solutions** — collecting, anonymizing using privacy enhancing technologies and processing of data from various sources (CDR, GPS coordinates from apps etc.), providing decision-makers with insights for policy defining, situation evaluation, city planning etc.; COVID-19-specific filters can easily be attributed
- **Connection platforms for health/trade facilities and logistics** — connects the demand for goods (e.g. masks) and the supply of cargo transport and matches them, providing transparent process and status tracking of the logistics
- **Smart on-demand based public transportation platform** — integrates different actors in the service cycle such as residents, drivers and municipalities
- **Road administration e-services** — enables 100% paperless processing of transactions, applications and data inquiries related to a person's right to drive and the person's vehicles
- **Public transport payment system** — a smart solution for contact-free fare payment by credit card; mobile phone or travel pass makes the use of public transport contact-free
- **Smart pedestrian crossings** — collecting of traffic statistics; detection of pedestrian gatherings; contact-free passing of crossings; alerting of the drivers
- **Self-driving shuttle bus** — helps to ensure contact-free transport of passengers and freight

PUBLIC SAFETY

- **Public-safety answering point** — increases security and builds a better civil warning management and notification system, which helps to face challenges similar to COVID-19
- **Catastrophe prevention** — early warning system to detect the sinking or rising of large infrastructures such as bridges, roads, highways, pipelines, major buildings and mining areas from distance and contact-free
- **Border services** — easily manageable electronic queue management and safety solutions on borders that help to ensure among other things smooth cargo movements during a crisis

CYBER SECURITY

- **Threat intelligence** — information an organization uses to understand the threats that have, will, or are currently targeting the organization
- **Risk and threat assessment management** — information security frameworks and standards
- **Cyber exercises and trainings** — preparation for hybrid-crises and cyberincidents; cyber hygiene training and cyber awareness programs with specific focus on targeted attacks and applying remote policies
- **Cyber security information fusion and situation awareness** — intrusion detection, fusion of cyber security events to provide a comprehensive overview of an organization's cyber situation status
- **Preparedness procedures** — improving data breach and incident response plans to ensure that organizations are prepared for responding to a data breach or a cyber security incident
- **Cyber security operational teams (CSIRT, CSOC)** — developing national and governmental capacities to monitor, discover and solve incidents
- **Digital forensics** — recovery and investigation of material found in digital devices
- **Cloud security** — rapidly deployable cloud monitoring to help enforce security policies across a (newly) distributed enterprise; allows government workers to remotely process personal data, sensitive or national security information

VALUE OFFER FROM ESTONIAN ICT CLUSTER

In order to build up an e-governance ecosystem, certain preconditions such as legislative environment and political will need to be in place. In cooperation with the Estonian ICT Cluster, a non-governmental and non-profit organization created to transfer our knowledge about building secure advanced digital societies in the world, you can benefit from end to end approach by:

- **getting policy and legal drafting consultation**
- **receiving change management support**
- **getting help with capacity building**
- **technology implementation**

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